

## CLAIMS

1. A substantially isolated or purified chitinase, said chitinase being a human chitinase having an amino acid sequence essentially corresponding to the amino acid sequence shown in fig. 1 or the amino acid sequence shown in fig. 2, or being a modified form of said human chitinase having a substantially similar chitin-hydrolyzing activity.
2. The chitinase of claim 1, produced by a genetically engineered host cell and isolated from said host cell or medium in which said host cell is cultured, wherein the amino acid sequence of the enzyme is encoded by a nucleotide sequence essentially corresponding to the nucleotide sequence shown in fig. 1 or the nucleotide sequence shown in fig. 2.
3. The chitinase of claim 1 having an amino acid sequence essentially corresponding to the amino acid sequence shown in fig. 1 and having a molecular weight of about 50 kDa.
4. The chitinase of claim 1 having an amino acid sequence essentially corresponding to the amino acid sequence shown in fig. 2 and having a molecular weight of about 39 kDa.
5. A pharmaceutical composition comprising the chitinase of any one of the claims 1 to 4 and a pharmaceutically acceptable carrier or diluent.
6. A pharmaceutical composition for therapeutic or prophylactic treatment of a human individual against infection by a chitin-containing pathogen, comprising a therapeutically or prophylactically effective amount of the chitinase of any one of the claims 1 to 4 and a pharmaceutically acceptable carrier or diluent.
7. The pharmaceutical composition of claim 6, which further comprises a therapeutically or prophylactically effective amount of a human  $\beta$ -1,3-glucanase.
8. A non-pharmaceutical composition comprising the chitinase of any one of the claims 1 to 4 and a carrier or diluent.
9. The composition of claim 8, which is a medium for culturing cells.

10. The composition of claim 8, which is a medium for culturing human cells.

11. The composition of claim 8, which is a cosmetic (e.g. body lotion), dental (e.g. tooth paste, mouth rinse) or food product (e.g. milk, cheese and other dairy products).

12. A chitin-based article of manufacture comprising a chitin-hydrolyzing amount of the chitinase of any one of the claims 1 to 4.

13. The chitin-based article of manufacture of claim 12, which is a drug-containing drug carrier or implant for controlled drug release.

14. The chitin-based article of manufacture of claim 12, which is a transient functional implant.

15. A method of therapeutic or prophylactic treatment of a human individual against infection by a chitin-containing pathogen, comprising administering to said human individual the pharmaceutical composition of any one of the claims 5 to 7.

16. A process for preparing a human chitinase having an amino acid sequence essentially corresponding to the amino acid sequence shown in fig. 1 or the amino acid sequence shown in fig. 2, or a modified form of said human chitinase having a substantially similar chitin-hydrolyzing activity, comprising growing a genetically engineered host or host cell capable of producing said human chitinase or modified form thereof and isolating the chitinase produced from said host or host cell or from medium in which said host cell is cultured.

17. The process of claim 16, wherein the amino acid sequence of said chitinase is encoded by a nucleotide sequence essentially corresponding to the nucleotide sequence shown in fig. 1 or the nucleotide sequence shown in fig. 2.

18. A genetically engineered host cell capable of producing a human chitinase having an amino acid sequence essentially corresponding to the amino acid sequence shown in fig. 1 or the amino acid sequence shown in fig. 2, or a modified form of said human chitinase having a substantially similar chitin-hydrolyzing activity.

19. A recombinant nucleic acid comprising a nucleotide sequence encoding, or complementary to a nucleotide sequence encoding, an

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amino acid sequence essentially corresponding to the amino acid sequence shown in fig. 1 or the amino acid sequence shown in fig. 2.

20. The recombinant nucleic acid of claim 19, wherein said  
5 nucleotide sequence essentially corresponds to, or essentially is complementary to, the nucleotide sequence shown in fig. 1 or the nucleotide sequence shown in fig. 2.
21. An oligonucleotide of at least about 8 nucleotides having a  
10 nucleotide sequence corresponding to, or complementary to, a nucleotide sequence shown in fig. 1 or a nucleotide sequence shown in fig. 2 and being capable of binding by hybridisation under stringent hybridisation conditions to nucleic acid coding for the human chitinase of any one of the claims 1 to 4.
22. A peptide of at least about 8 amino acid residues having an  
15 amino acid sequence derived from the amino acid sequence shown in fig. 1 or the amino acid sequence shown in fig. 2 and representing or mimicking an epitope of the human chitinase of any one of the claims 1 to 4.
23. The peptide of claim 22 having an amino acid sequence  
20 corresponding to an amino acid sequence shown in fig. 1 or an amino acid sequence shown in fig. 2 and having antigenicity.
24. An antibody capable of binding to the human chitinase of any one of the claims 1 to 4.
25. The antibody of claim 24, which is a monoclonal antibody.
26. A diagnostic kit comprising the antibody of claim 24 or 25  
and a conventional component of diagnostic kits for detecting an antigen or an antibody.
27. A diagnostic kit comprising the peptide of claim 22 or 23  
and a conventional component of diagnostic kits for detecting an  
30 antigen or an antibody.
28. A diagnostic kit comprising the oligonucleotide of claim 21 and a conventional component of diagnostic kits for detecting a nucleic acid.
29. A diagnostic kit comprising the recombinant nucleic acid of  
35 claim 19 or 20 and a conventional component of diagnostic kits for detecting a nucleic acid.

30. A diagnostic kit comprising the human chitinase of any one of the claims 1 to 4 and a conventional component of diagnostic kits for detecting an antigen or an antibody.

- 5 31. A method of decomposing chitin comprising contacting said chitin with the human chitinase of any one of the claims 1 to 4 under chitin-hydrolyzing conditions.

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